

We claim:

1 1. A therapeutic element comprising:
2 an elongate solid member;
3 radioactive seed elements;
4 said radioactive seed elements dispersed within said elongate
5 solid member.

1 2. The therapeutic element set forth in claim 1 wherein said
2 elongate solid member is axially rigid and radially flexible.

1 3. The therapeutic element set forth in claim 1 wherein said
2 elongate solid member is sufficiently axially rigid to prevent jamming or
3 collapsing while being pushed out of a needle.

1 4. The therapeutic element set forth in claim 1 wherein said
2 elongate solid member has sufficient radial flexibility to maintain locational
3 accuracy relative to a tumor target as said tumor target shrinks in size.

1 5. The therapeutic element set forth in claim 1 wherein the
2 thickness of said elongate solid member around said radioactive seeds is
3 sufficient to decrease normal tissue necrosis from a high local dose of
4 radiation.

1 6. The therapeutic element set forth in claim 1 wherein said
2 elongate solid member is longitudinally flexible.

1 7. The therapeutic element set forth in claim 1 wherein said
2 elongate solid member is impregnated with a hormone.

1 8. The therapeutic element set forth in claim 1 wherein said

1 elongate solid member is impregnated with a drug.

1 9. The therapeutic element set forth in claim 1 wherein said
2 radioactive seed elements are positioned at various intervals along the
3 length of said elongate solid member.

1 10. The therapeutic element set forth in claim 1 wherein said
2 radioactive seed elements contain a hormone.

1 11. The therapeutic element set forth in claim 1 wherein said
2 radioactive seed elements contain a drug.

1 12. The therapeutic element set forth in claim 1 wherein said
2 radioactive seeds contain a compound or element that emits photonic
3 radiation having a low energy and a short half-life.

1 13. The therapeutic element set forth in claim 1 wherein said
2 radioactive seeds contain an isotope consisting of the group iodine 125,
3 palladium 103, iridium 192, cesium 131, gold 198 yttrium 90 and
4 phosphorus 32.

1 14. The therapeutic element set forth in claim 1 wherein said
2 elongate member is composed of a bio-absorbable material.

1 15. The therapeutic element set forth in claim 1 wherein said
2 elongate member is composed of a bio-absorbable material absorbed by
3 living tissue within about 70 to 120 days.

1 16. The therapeutic element set forth in claim 1 wherein the bio-
2 absorbable material is selected from the group consisting of polymers and
3 copolymers of glycolide, lactide and polydiacxanone.

1 17. The therapeutic element set forth in claim 1 wherein said
2 elongate solid member is echogenic.

1 18. The therapeutic element set forth in claim 1 wherein said
2 elongate solid member has air bubbles.

1 19. The therapeutic element set forth in claim 1 wherein said
2 elongate solid member is laterally flexible.

1 20. A therapeutic element comprising:
2 an elongate, axially rigid and radially flexible member;
3 radioactive seed elements;
4 said radioactive seed elements dispersed within said elongate
5 member.

1 21. The therapeutic element set forth in claim 20 wherein said
2 axially rigid and radially flexible member is continuous.

1 22. A therapeutic element comprising:
2 an elongate axially rigid and radially flexible member;
3 radioactive seed elements;
4 hormone impregnated seed elements;
5 said radioactive seed elements and said hormone
6 impregnated seed elements dispersed within said elongate axially
7 rigid and radially flexible member.

1 23. The therapeutic element set forth in claim 22 wherein said
2 axially rigid and radially flexible member is continuous.

1 24. A therapeutic element comprising:

1 an elongate axially rigid and radially flexible member;
2 radioactive seed elements;
3 drug impregnated seed elements;
4 said radioactive seed elements and said drug impregnated
5 seed elements dispersed within said elongate axially rigid and radially
6 flexible member.

1 25. The therapeutic element set forth in claim 24 wherein said
2 axially rigid and radially flexible member is continuous.

1 26. A therapeutic element comprising;
2 an elongate, axially rigid and radially flexible member;
3 one of a hormone and a drug;
4 said one of hormone and said drug implanted in the elongate
5 axially rigid and radially flexible member.

1 27. The therapeutic element set forth in claim 29 wherein said one
2 of a hormone and a drug is dispersed along the length of said elongate,
3 axially rigid and radially flexible member.

1 28. A therapeutic element comprising:
2 an elongate axially rigid member;
3 said elongate axially rigid member not having sufficient rigidity
4 to be driven into a tumor without deflection;
5 radioactive seed elements;
6 said radioactive seed elements dispersed within said elongate
7 solid member.

1 29. A brachytherapy device comprising:
2 a therapeutic element, including an elongate, axially rigid and
3 radially flexible member;

1 a needle with a lumen;
2 a plug in the end of said needle;
3 wherein said therapeutic element is positioned inside said
4 lumen of said needle.

1 30. The brachytherapy device set forth in claim 29 wherein said
2 elongate, axially rigid and radially flexible member is continuous.

1 31. The brachytherapy device set forth in claim 29 wherein said
2 elongate solid member is a close fit to the needle lumen.

1 32. The brachytherapy device set forth in claim 29 wherein the fit
2 between said elongate solid member and said needle prevents collapse of
3 said therapeutic element as said therapeutic element is passed through said
4 needle.

1 33. The brachytherapy device set forth in claim 29 wherein said
2 plug is bio-compatible.

1 34. A method for making a therapeutic element comprising, in any
2 order:
3 dispersing radioactive seed elements within a molding cavity;
4 and
filling the molding cavity with a bio-absorbable polymer;

1 35. The method for making a therapeutic element set forth in
2 claim 34 wherein said molding cavity is shaped to the desired final
3 dimensions of said therapeutic element.

1 36. The method for making a therapeutic element set forth in
2 claim 34 wherein said molding cavity spaces said radioactive seeds at

1 appropriate intervals.

1 37. The method for making a therapeutic element set forth in
2 claim 34 wherein said polymer is introduced into said mold at a temperature
3 greater than the melt point of said polymer.

1 38. The method for making a therapeutic element set forth in
2 claim 34 wherein said polymer surrounds said radioactive seeds.

1 39. The method for making a therapeutic element set forth in
2 claim 34 wherein said polymer fills the spaces between said seeds.

1 40. The method for making a therapeutic element set forth in
2 claim 34 wherein said bio-absorbable polymer is impregnated with a
3 hormone.

1 41. The method for making a therapeutic element set forth in
2 claim 34 wherein said bio-absorbable polymer is impregnated with a drug.

1 42. A method of brachytherapy comprising:
2 loading a needle with a therapeutic device;
3 inserting said needle into the therapeutic site into the most
4 distal location from the insertion point;
5 inserting a stylet into said needle;
6 gradually pulling on said needle while maintaining the stylet
7 stationary relative to the axial movement of said needle;
8 and dispensing said therapeutic device.

1 43. The method of brachytherapy set forth in claim 42 wherein the
2 overall diameter of said therapeutic element is sufficient to prevent collapse
3 within the needle lumen.

FOOTNOTES

- 1 44. The method of claim 43 wherein said therapeutic device is an
2 elongated solid member having spaced radioactive seeds.
- 1 45. The method of claim 43 wherein said therapeutic device is an
2 elongated axially rigid and radially flexible member having spaced
3 apart radioactive seeds.
- 1 46. The method of claim 43 wherein said therapeutic device is an
2 elongated member formed of a bio-absorbable material into which
3 are positioned a plurality of spaced apart radioactive seeds.
- 1 47. The method of claim 43 wherein said therapeutic device is an
2 elongated member is comprised of a plurality of spaced apart
3 radioactive seeds which are encapsulated in a bio-absorbable
4 material.
- 1 48. The method of claim 47 wherein said bio-absorbable material is a
2 polymer.
- 1 49. The element of claim 1 wherein said member has a durometer in the
2 range of about 20 to about 80.
- 1 50. The element of claim 1 wherein said member has a durometer in the
2 range of about 20 to about 40.
- 1 51. The element of claim 20 wherein said member has a durometer in the
2 range of about 20 to about 80.
- 1 52. The element of claim 20 wherein said member has a durometer in the
2 range of about 20 to about 40.

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- 1 53. The element of claim 28 wherein said member has a durometer in the
2 range of about 20 to about 80.
- 1 54. The element of claim 28 wherein said member has a durometer in the
2 range of about 20 to about 40.
- 1 55. A prescription method of treating tissue comprising the steps of:
2 first creating a tissue treatment plan for the tissue to be treated, which
3 treatment plan specifies the a number and spacing of treatment seeds to be
4 provided in a strand; and
5 second creating a treatment strand by molding treatment seeds in a
6 material.
- 1 56. The method of claim 55 wherein:
2 said first creating step is performed by a person treating a patient;
3 and
4 said second creating step is performed by an entity that fills
5 prescriptions by forming the strand, which entity fills prescriptions from a
6 plurality of patients.
- 1 57. The method of claim 55 wherein:
2 wherein said first creating step specifies radioactive seeds and
3 optimal spacings between each pair of seeds; and
4 wherein said second creating step creates strands to the specified
5 optima spacings prescribed.
- 1 58. The method of claim 57 wherein:
2 said second creating step is performed positioning radioactive seeds
3 in a mold at the optimal spaces and pouring in a material to mold the
4 radioactive seeds in place.

- 1 59. The method of claim 58 wherein:
2 said material that is poured is a bio-absorbable material.
- 1 60. The method of claim 59 wherein:
2 said material that is poured in is a polymer material.
- 1 61. The method of claim 55 wherein:
2 said first creating step uses imaging devices for creating a treatment
3 plan.
- 1 62. The method of claim 55 including:
2 receiving said treatment strand and implanting the treatment strand
3 adjacent to the tissue to be treated.
- 1 63. The method of claim 55 including the step of using heated treatment
2 seeds.
- 1 64. The method of claim 42 including the step of using heated treatment
2 seeds.
- 1 65. The therapeutic element set forth in claim 1 wherein said elongated
2 member is composed of a bio-absorbable material which is absorbed
3 when the half-life of the radioactive seed elements is reached.
- 1 66. The therapeutic element set forth in claim 20 wherein said elongated
2 member is composed of a bio-absorbable material that is absorbed
3 when the half-life of the radioactive seed elements is reached.
- 1 67. The therapeutic element set forth in claim 28 wherein said elongated
2 member is composed of a bio-absorbable material that is absorbed

1 when the half-life of the radioactive seed elements is reached.

1 68. The therapeutic element of claim 1 wherein said therapeutic element
2 is steam sterilizable.

1 69. The therapeutic element of claim 20 wherein said therapeutic
2 element is steam sterilizable.

1 70. The therapeutic element of claim 22 wherein said therapeutic
2 element is steam sterilizable.

1 71. The therapeutic element of claim 24 wherein said therapeutic
2 element is steam sterilizable.

1 72. The method of claim 42 wherein the therapeutic device is steam
2 sterilized prior to usage.

1 73. The therapeutic element of claim 1 wherein the radioactive seed
2 element is bio-absorbable.

1 74. The therapeutic element of claim 20 wherein the radioactive seed
2 element is bio-absorbable.

1 75. The therapeutic element of claim 1 wherein the radioactive seed
2 element also contains a drug and wherein the seed element is bio-
3 absorbable.

1 76. The therapeutic element of claim 20 wherein the radioactive seed
2 element also contains a drug and wherein the seed element is bio-
3 absorbable.

1 78. The therapeutic element of claim 26 wherein said one of said
2 hormone and said drug is encapsulated in a biodegradable seed
3 along with radioactive elements.